

REMARKS

Claims 2, 3, 14, 15, 21-25, 34 and 51-83 are pending. By this Amendment claims 51, 55, 56, 61, 63, 69-71, 75, 77-79 and 82 are amended, and the specification is amended. The specification is amended to correct an obvious informality therein. See, for example, the specification at page 2, line 2 and page 8, lines 4-5. All of the amended claims have been amended to change "light" to "radiation" so as to be consistent with claims 21 and 24 and so as to overcome the rejection under 35 U.S.C. §112, first paragraph. Independent claims 51 and 56 also have been amended to even more clearly distinguish over the applied references. Support for the amendments to claims 51 and 56 can be found in the specification at, for example, page 17, lines 10-20, page 18, lines 14-16, page 20, line 4 - page 21, line 13 and page 21, line 26 - page 22, line 4. No new matter is added by the amendments.

Applicants submit that this Amendment should be entered after final rejection because it places this application in condition for allowance, or at least better condition for appeal, does not raise any new issues, does not require any further search by the Examiner, and does not add any claims.

Applicants thank Examiner Church for the courtesies extended to Applicants' representative during the August 26 telephonic interview. The substance of the interview is detailed below.

Applicants note with appreciation the allowance of claims 2, 3, 14, 15, 21-25 and 34. Applicants respectfully submit that all pending claims are in condition for allowance.

Claims 62, 70, 76 and 83 stand rejected under 35 U.S.C. §112, second paragraph. In particular, the Office Action rejects these claims because they are method claims that depend from apparatus claims. This rejection is respectfully traversed.

MPEP 821.04 specifically authorizes (and encourages) Applicants to add method claims (for example, relating to a method of using a product) as dependent claims from

product claims. In particular, the first and second paragraphs of MPEP 821.04 state, *inter alia*:

...if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined.

Where the application as originally filed discloses the product and the process for making and/or using the product, and only claims related to the product are presented for examination, when a product claim is found allowable, applicant may present claims directed to the process of making and/or using the patentable product by way of amendment pursuant to 37 C.F.R. 1.121. In view of the rejoinder procedure, and in order to expedite prosecution, applicants are encouraged to present such process claims, preferably as dependent claims, in the application at an early stage of prosecution. Process claims which depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance...."

Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is requested.

During the interview, it was agreed that this rejection would be withdrawn.

The specification is objected to, and claims 51-83 are rejected, under 35 U.S.C. §112, first paragraph, the Office Action alleging that "as described in the specification, the photoelectric effect is wavelength sensitive and occurs only over a specific range of

wavelengths that does not include light. The disclosure explicitly teaches the x-ray range of 5-20nm (lines 12-13 of page 8) but fails to teach how to practice the invention for light as now claimed." This objection and rejection are respectfully traversed.¹

While the invention is particularly useful for systems using x-ray light, because the invention does not require the use of a half-mirror, which can be difficult to use with x-ray light (see, for example, page 5, lines 5-6), Applicants respectfully submit that the invention is not limited to systems that use x-ray light, and the specification also is not so limited. The illustrated embodiment, which uses x-ray radiation, is merely one example (page 8, lines 30-31 specifically states "in the present example,..." (emphasis added)).

The specification explicitly states that the invention can be used with a wide wavelength range of irradiation. For example, at page 5, lines 9-11, it is stated that the radiation can be soft x-ray or electromagnetic radiation. EUV radiation is discussed throughout the specification. In addition, at page 8, lines 29-30, the specification states "[a] laser light source 90 supplies laser light having a wavelength in a range from the infrared region to the visible region." In addition, at least one aspect of the invention is described in a manner that is not limited to x-ray radiation. See, for example, page 6, lines 14-20. Moreover, many of the original claims (some of which are currently allowed) are not limited to x-ray radiation. See, for example, original independent claims 21, 24, 26, 28 and 30.

As was agreed during the interview, the rejection of claims 51-83 under 35 U.S.C. §112, first paragraph, has been overcome by amending the claims to recite "radiation" rather than "light", as was done in the original claims.

Claims 51-62 stand rejected under 35 U.S.C. §103(a) over JP-A-5-288696 (JP-696) in view of U.S. Patent No. 6,504,896 to Miyake et al. This rejection is respectfully traversed.

¹ The Office Action's reasoning is not applicable to claims 55, 61, 69, 75 and 82, which recite that the supplied light is 5nm-20nm light.

As recognized in the Office Action, Miyake et al. merely discloses an x-ray illumination optical system for lithography. Although the Miyake et al. lithography system has multiple mirror optical members, Miyake et al. does not disclose or suggest generating electrical information based on a photoelectric effect that is caused by irradiating light at an optical member, such as, for example, a reflective member, and does not disclose or suggest using such electrical information in any way.

JP-696 discloses monitoring contamination of a single mirror 2 with an ammeter 10 that is attached to that mirror. Thus, while it may be true that lithography devices can have multiple mirrors (as disclosed in Miyake et al.), neither Miyake et al. nor JP-696 discloses or suggests monitoring a plurality of mirrors or other optical members, as recited in claims 51 and 56.

In particular, claims 51 and 56 have been amended to even more clearly recite more than merely monitoring a plurality of optical members. Claims 51 and 56 recite, *inter alia*, a signal generator that is electrically connected to at least two optical members and that generates electrical information based on a photoelectric effect which is caused by light being irradiated to the at least two optical members, and a detector that detects an optical characteristic and/or a deterioration of an optical characteristic with respect to at least one of the at least two optical members based on the electrical information generated by the signal generator. Claims 51 and 56 also recite that "the detector detects an optical characteristic and/or a deterioration of an optical characteristic with respect to one of the optical members based on the electrical information generated by the signal generator for more than one of the optical members so that influences of the more than one optical members on the photoelectric effect caused at the one optical member can be taken into account in detecting the optical characteristic and/or the deterioration of the optical characteristic of the one optical member. Thus, claims 51 and 56 recite that a detection is made with respect to one optical member

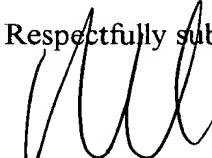
based on the photoelectric effect information that was generated by more than one (at least two) optical members. Neither JP-696 nor Miyake et al. discloses or suggests such features. JP-696 only uses photoelectric effect information from a single mirror to detect whether that same (single) mirror is dirty.

Thus, unlike what is recited in claims 51 and 56, JP-696 cannot distinguish between a change in the output of the ammeter that is due to contamination of the mirror and a change in the output of the ammeter that is due to a change in the synchrotron radiation light 31 that is irradiated to the mirror 2, or a change that is due to contamination of a mirror or optical member (e.g., a filter) other than the mirror whose condition is being detected. The apparatus of claims 51 and 56 are capable of making such a determination because they receive photoelectric effect information from multiple optical members. Accordingly, claims 51 and 56, as well as their dependent claims, are patentable over JP-696 and Miyake et al.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,


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